PROGRESS
OF
MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF
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Green, Blue, Magenta, and Other Colored Urines.—WM. MURRELL (*Edin. Med. Jour.*, 1906, xix, 497) gives a rather extensive report of the various colored urines due to drugs or other causes, which may be of especial interest in relation to the modern synthetic therapeutic compounds.

Blue or Green Urines. A great majority of these are due to methylene blue. He found that ¼ grain twice a day imparts a pea-green color to the urine, and when repeated more often, the color becomes blue. These urines decompose slowly and the color which disappears may return on shaking, owing to the absorption of oxygen. All variations between the color of normal urine and that of deep blue may be seen. Green urines may at times be due to biliverdin and occasionally there are indigo-blue urines. The various tests and spectroscopic examinations are then given in detail for purposes of differentiation.

Black Urines. Carboluria: This may be due to carbolic acid or at times to salicylic acid in large doses. The urine is usually dark and smoky. Fuchsin in small doses may produce a dark olive-green urine, approaching black in color. *Melanuria:* This may be due to melaniasis, when there is present somewhere in the body a melanotic sarcoma. Other dark-colored urines may be due to hemoglobinuria and hematoporphyrinuria. The urine is usually of a dark port-wine color. Spectroscopic examination is here most important in distinguishing the cause.

Red and Purple Urines. Aside from the febrile urines which may give these colors to the urine there are certain drugs causing them, such as "Purgen" (familiarly known as phenolphthalein) and largely advertised as a purgative. When the urine is acid there is no color, but when alkaline or neutral it shows a deep crimson-red color. This color is destroyed by acids and restored by alkali. The spectrum is quite characteristic. "Purgatin" is another synthetic drug that colors the urine a bright red in acid or alkaline urines. Pyoktanin, or methyl violet, usually gives a faint violet tinge to the urine. Fuchsin produces a bright-purple urine. It may be readily distinguished from phenolphthalein by the disappearance of its color on the addition of alkalies and the appearance of a yellow color with acids. Murrell gives the various tests for the different drugs and shows in plates their spectra as compared with the solar and urinary spectra.

[Under black urines the author might have mentioned alkaptonuria in which, on standing, the urine may become nearly black.—W. S. T.]

Experiments on the Leukolytic Action of the Blood Serum in Cases of Leukemia Treated with the X-rays and the Injection of Human Leukolytic Serum in a Case of Leukemia.—J. A. CAPPS and J. F. SMITH (*Jour. Exp. Med.*, 1907, ix, 51). The general conclusions which Capps and Smith give in this excellent piece of experimental work are as follows: "The x-rays produce in leukemia a disintegration of the leukocytes, affecting especially the young forms, namely, the myelocytes and the non-granular mononuclear cells. A similar action but one of less degree takes place in leukemic blood exposed to the x-rays in vitro. The serum of a leukemic patient who has improved under the x-ray treatment when injected into animals causes leukopenia; when added in a hanging drop to the leukocytes of another individual, it disintegrates the cells. This leukolytic action is selective, destroying first the mononuclear cells. The strength of the leukolytic action seems to be proportional to the degree of clinical improvement of the patient under the x-ray treatment. The serum in a case of leukemia which has been exposed to the x-rays has a marked agglutinating action on normal red corpuscles and on other corpuscles. The degree of agglutination varies roughly with the degree of leukolysis. The x-ray treatment of normal or leukemic blood in vitro does not materially alter the phagocytic power of the leukocytes. The injection of a strong leukolytic serum from a patient suffering from lymphatic leukemia under the x-ray treatment, into another individual with lymphatic leukemia but not under treatment, causes a decided and rapid fall in the number of the leukocytes, the mononuclears being principally affected. With repeated injections, a partial immunity to the serum was established." The nature of the leukolysin remains in doubt. It may be an amboceptor-complement complex or a true toxin.

Review of 105 Reported Cases of Acute Pancreatitis with Special Reference to Etiology; with a Report of 2 Cases.—A. EGDAHL (*Johns Hopkins Hosp. Bull.*, 1907, xviii, 130) gives a most careful review of the reported cases of acute pancreatitis with special reference to the etiology, and in summing up notes that the onset was sudden in most of the cases, due to whatever causes, and corresponds closely to the original description of Fitz. As regards the mortality: Of the 44 cases associated with gallstones, 30 died. Of the 32 associated with gastro-intestinal disturbance, 17 were fatal. Of the remaining cases due to miscellaneous causes, 29 in all, 12 died. Sugar was present in the urine of 6 cases;

3 recovered; 2 died. In 1 there was no statement as to the results. Fat necrosis was present in nearly all of the cases operated on or seen at autopsy. As reviewed from the articles in the literature Egdahl notes that the pain is most probably due to the stretching of the sensitive parietal peritoneum, especially where there is much extravasation of blood, and this spreading may account for the different localizations of the pain. The inflammatory process does not necessarily follow the same route as the hemorrhage. The cause of the marked collapse in death has recently been shown to be most probably due to the absorbed trypsin. Egdahl reports on 2 cases of which he has the notes, 1 of acute hemorrhagic pancreatitis in which there was marked inflammation about the pyloric end of the stomach and duodenum, with some occlusion of the ampulla of Vater. No gallstones were present at autopsy, but may have been previously. Fat necrosis were present. The second case was one of acute suppurative pancreatitis in which typhoid fever was most probably the cause. In this latter case sugar was present in the urine and fat in the stools. The head and body of the pancreas were much destroyed. There were no gallstones present.

His conclusions are as follows: (1) Gallstones are probably the most common single cause of pancreatitis. Judging from this series about 42 per cent. of the cases of acute pancreatitis are associated with gallstones. (2) Gastro-intestinal disorders are the next most common cause of acute pancreatitis. In this series of cases about 30 per cent. belong to this group; 17 out of the 32 of this group gave a history of alcoholism. It is very propable that retrojection of bile may be caused by intestinal disorders closing the papilla of Vater. (3) Acute pancreatitis may be caused by many other conditions. Among these we have typhoid fever, tuberculosis, mumps, trauma, syphillis, emboli, appendicitis, malaria, and gastric ulcer. (4) The organism most commonly present is B. coli communis; next comes the streptococcus and the staphylococci. (5) Typhoid fever is the most common of the acute febrile diseases present according to the previous histories of these cases of atute pancreatitis. In the present series 3 were directly associated with typhoid fever alone and 4 had suffered from typhoid fever some time before the onset of acute pancreatitis and had apparently recovered; another had had typhoid fever and erysipelas. But 2 out of these 8 cases were associated with gallstones. It should be kept in mind that in this latitude typhoid fever is the most common continued febrile disease.

The Treatment of Tuberculosis by Marine Climates.—WM. EWART (*Medical Press and Circular*, London, 1907, lxxxiii and lxxxiv, 447 and 476) begins this thorough analysis of the effects of marine climates by the following summary of cases suitable for such treatment: (1) All cases of surgical tuberculosis and scrofula are suitable. (2) All latent or threatened cases are suitable.. (3) Early cases of declared tuberculosis are debatable. They are all fit to try the mountain cure, but failing in this not all will benefit most at the sea-side; and more equable climates may be indicated. (4) The suitability of cases of advanced phthisis can only be decided in relation to the existing prognosis and to personal toleration and preference in regard to climate. (5) The excellent progress maintained at chosen spots along the coast by some cases of chronic quiescent phthisis reveals the fact that there are temperaments for which sea-side air is especially favorable, and may be of positive advantage even at the later stages. Ewart goes carefully into the different aspects and effects of sea-air and sea-water, also the different qualities of pure ocean air and sea-coast climates in tuberculosis, and in summing up, his conclusions are that in most cases the inland and altitude cures are more beneficial, but in certain other cases the marine climate is the best, and this latter is of the greatest benefit in the prevention of the disease in suitable subjects. He says that in England especially the best place for the "prevention sanitarium" or "preventorium" is the sea-coast.

Tertiary Syphilitic Fever and the Visceral and other Changes Connected with It.—PARKES WEBER (*Lancet*, 1907, i, 728) reports extensively several cases bearing on the above points, in the first one of which a female on four different occasions showed a remarkably rapid disappearance of the fever on the use of antisyphilitic treatment. The fever is usually of a hectic type and in many cases may often be mistaken for some septic condition or even pulmonary tuberculosis, especially as the fever is sometimes accompanied by chills, night-sweats, and emaciation. Many examples of such cases are reported from the literature. As noted in the accompanying article the diagnosis of typhoid is sometimes made and especially when associated with diarrhœa. Endocarditis may at times be suspected. The associated liver conditions, with pain, tenderness, and even jaundice, may lead at times to a suspected abscess, cholecystitis, etc., and operation may often be tried. Gastrointestinal symptoms in late tertiary syphilis may be very severe and associated with fever, cachexia, anorexia, and obstinate diarrhœa. Obscure bone and joint conditions may often be due to a luetic infection, and when associated with some pyrexia may often be misleading, but clearing up on active antiluetic treatment. Weber gives numerous reports from the literature, with cases and types of fever associated with various obscure visceral manifestations of lues.

This article leads up to the review of another similar article entitled "Two Cases of Syphilis Simulating Typhoid Fever," by D. ROLLESTON (*Med. Press and Circ.*, London, 1907, lxxxiii, 307), who says that the possibility of syphilis being mistaken for typhoid fever has been recognized since Fournier in 1873 emphasized the similarity of the two conditions and introduced the term "typhose" to designate the condition in certain cases of syphilis, particularly in women, which closely simulate typhoid fever. He also gives a brief *resume* of the literature on this subject and notes that, though rare, some of the cases resemble typhoid, especially those with enlarged spleen, abdominal distention, and others with diarrhœa. An interesting reference is to those cases reported by FUTCHER (*New York Med. Jour.*, 1901, p. 1065). The fever may exist apart from any specific manifestations, and to this manifestation Fournier gives the name "essential syphilitic fever." The disease may be mistaken for tuberculosis, malaria, or influenza. Typhoid fever and syphilis may co-exist and a persistent negative Widal reaction may help in excluding typhoid fever; mercury and iodide may be of service. The cases reported by Rolleston were admitted to the hospital with a diagnosis of typhoid fever, the first with a low grade of fever and with marked cerebral symptoms resulting fatally. Rolleston calls attention to the following points in connection with the first case: (1) The tendency that syphilis has to imitate other diseases, as in this case before admission, the diagnosis being, first, diphtheria; second, brain disease; and lastly, typhoid, for which he was admitted. (2) The early implication of the brain. (3) The galloping character of the disease. (4) The intermittent type of fever. (5) The enlargement of the liver. In the second case the general phenomena and the steady high temperature suggested typhoid fever at first, but in a short time typical luetic manifestations appeared. This patient recovered quite rapidly on active antileutic treatment.

The Diagnostic and Prognostic Value of the Enumeration of the Nuclei of Neutrophilic Leukocytes and their Relative Phagocytic Power.—D. M. KAPLIN (*New York Med. Jour.*, 1907, lxxxv, 674). As is well known the nuclear polymorphism of the neutrophilic cells extends all the way from a mononuclear form to a form having two or more parts. Arneth in particular took up the study of the relationship of the number of the nuclei of different cells in various diseases. The simple indented and bent mononuclear is most probably the closest to the myelocyte and the youngest of the polymorphonuclear cells. As noted by Arneth the cells predominating in number are those containing two or three nuclei; next, those with one nucleus; then those with four nuclei, and lastly those with five nuclei. In certain pathological states the number of twos and threes may be diminished and those with one nucleus markedly increased. The normal arrangement of figures as regards the number of nuclei may be graphically shown in a count of 100 cells as follows:

Number of nuclei,	1	2	3	4	5
Number of cells,	24	45	25	5	1

Kaplin has been led by this division to make careful nuclear counts and to determine the relation to prognosis and diagnosis in various diseases. He has noted that in the beginning of a disease there is a rapid rise in the count of the one-nuclear cells which increases as the disease gets worse and remains stationary when the disease is stationary. With the subsidence of the disease the number of mononuclear cells diminishes gradually and the binuclear or polynuclear cells increase. He cites many cases with their nuclear counts which bear out these statements and says: "No matter what the number of white blood corpuscles per cubic millimeter, the nuclei of the neutrophiles apparently behave in a constant and regular manner in infectious processes or in any condition where the organism is below par, so that we have a delicate hemic gauge whereby to distinguish an infectious process in low-par states, when a hyperleukocytosis may be absent." The nuclear counts vary apparently with a reinfection or a relapse during the disease. As far as assigning any function to this mononuclear form, he can only offer hypotheses, such as that the extra-formation of these young forms meets the added demand in infections, or that the disease paralyzes the further development of these cells.

As regards the ability of the different nucleated cells to take up bacteria the author performed some experiments with staphylococci and found definitely that the mononuclear form takes up more bacteria than the others, the next in order being the binuclears and trinuclears, those taking up the least number being those with four or five nuclei. This may be graphically shown as follows:

Number of nuclei,	1	2	3	4	5
Number of cells,	32	30	28	10	0
Number of staphylococci in cells,	160	135	126	18	0
Average to a cell,	10	9	9	3.6	0

Kaplin notes in conclusion that this is only a preliminary communication, and says that much further work is needed on this interesting subject.

The Occurrence of Atypical Phagocytic Cells in the Circulating Blood.—M. W. Rowley (*New York Med. Jour.*, 1907, lxxxv, 674). The recent review of an article by van Nuys, in the *Boston Medical and Surgical Journal*, on the presence of atypical phagocytic cells in the blood, brings up this article for review as indicating the possibility of a more frequent occurrence of these atypical cells if only looked for and noted carefully; and by more careful and extensive reports of many such cases much light may be thrown on clinical hematology. Rowley in one case of tertian malaria and three cases of lymphatic leukemia found these atypical phagocytic cells. They varied much in size and shape, sometimes being round and sometimes irregular in outline and shape, with protroplasmic processes. They may have one or more nuclei, the nuclei containing a fine reticular network, and in the majority of the cells being kidney-shaped. In staining by Wright's method the cells resemble the large lymphocytes, the nuclei staining a reddish purple and the protoplasm various shades of dusky blue. There are usually no distinct granulations. The cells may be seen with red blood corpuscles and even other leukocytes engulfed. As to their nature, they resemble to some extent the elements found in exudates into the serous cavities or in the spleen and elsewhere; that is the so-called "endothelial cells." The article has several photomicrographs of these atypical cells, and their presence and phagocytic properties have been identified by good authorities.

[In pernicious estivo-autumnal malaria the presence in the peripheral blood of enormous macrophages is the rule.—W. S. T.]

Cervical Adenitis with Reference to Mouth Infection.—F. D. Donoghue (*Boston Med. and Surg. Jour.*, 1907, clvi, 392) asserts that the frequency with which purulent conditions of the teeth and mouth are overlooked is most important, as in a great many diseases the beginning of the trouble dates from a mouth infection or pyorrhœa alveolorum, which leads first to the involvement of the cervical glands. In reviewing the literature as to the origin of pulmonary tuberculosis he notes that primary tuberculosis of the cervical glands is quite rare, and in a study of 300 cases of enlarged cervical glands at the Boston Dispensary says that in very few cases only should the source of the infection be overlooked, and the author performed some experiments with staphylococci and found definitely that the mononuclear form takes up more bacteria than the others, the next in order being the binuclears and trinuclears, those taking up the least number being those with four or five nuclei. This may be graphically shown as follows:

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"Enlarged glands of the neck are not primarily tuberculous, and bear the slightest relation if any, to the general or pulmonary tuberculosis. They are due to a mixed infection of pus-producing bacilli. They will quickly resolve if the source of the infection is removed before the glandular tissue becomes disorganized. The treatment in the later stages, especially, is entirely local and surgical, either opening and draining, or, in advanced cases, complete dissection. General hygienic measures should, of course, accompany it."

SURGERY.

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Traumatic Curved Radius, with Progressive Subluxation of the Ulna. —Derscheid-Delcourt (*Jour. de chir, et annales de la Soc. Belgæ de chir.*, 1907, vii, 235) reports a fracture of the radius consequent upon the violent backward turn of the crank of an automobile. In attempting to start a recalcitrant machine he received all at once a shock which he could not control. Severe symptoms followed and the skiagram showed a fracture of the lower third of the radius. There was a wedge-shaped fragment from the ulnar side of the radius, the apex being toward the radial side and the base toward the ulnar side of the forearm. The handle of the crank being held in the fork between the thumb and the fingers, the shock was transmitted through the radial portion of the carpus to the radius, which was thus caught between the carpus and the humerus. To this action was added, probably, that of traction on the lower end of the radius by the anterior carpal ligament. The kind and degree of force in this accident are peculiar to the automobile. The treatment consisted chiefly in retaining the limb in a plaster bandage longer than the usual time, because of the slowness of consolidation. In about eight weeks massage was begun. The skiagram had shown a slight angulation at the seat of fracture, the lower fragment being pushed outward while the upper was directed toward the interosseous space. There was now observed a progressive subluxation of the carpus from the ulna. As the consolidation of the radius progressed, the skiagram showed that the radius became more and more curved inward and forward, and the ulna more separated from the wrist. The ulna was carried backward, the ulnar portion of the wrist being carried strongly forward. The writer explains the mechanism of the deformation by the presence of the triangular or wedge-shaped fragment on the ulnar side of the radius and the gradual tendency of the chief fragments to approximate each other for the production of callus. This progressive shortening and angulation of the radius led to the disarticulation and deformity of the wrist. There is partial functional impotence, that is, supination is very limited, but all the other movements are perfectly free. The patient is, however, considerably distressed by this loss of function, particularly his inability to use the gun in hunting, of which he is very fond, and by the pain on pressure and deformity. Massage and passive movements have been tried. A brace is being employed to support the whole forearm and wrist, furnished with a strong steel spring to keep the wrist reduced. A metallic plate with a pad over the prominence and elastic bands are used with the hope of finally correcting the curve in the radius. Considerable progress has been made already, although the limb is far from being normal. As a last resort, if the cure remains incomplete the writer thinks it will be advisable to do an oblique osteotomy of the radius, advised by Duplay and given in detail in the recent work of Gyselynck and Lemoine upon the reparative surgery of the hand.

Neuralgia of the Sciatic Nerve Due to the Pressure of a Dermatoleiomyoma.—De Beule (*Jour. de chir. et annales de la Soc. Belg. de chir.*, vii, 1907, 239) reports a case in which a woman, thirty-seven years old, suffered for years from a sciatica intense and rebellious to all medical treatment. The neuralgia involved the region supplied by the external popliteal sciatic (peroneal). There were no atrophic troubles; muscular power, circulation and sensation were completely normal, and none of Vallieux's points were detected. On the external surface of the knee above the head of the fibula was discovered a small hypodermic tumor, the size of a cherry. It was without pain to superficial pressure, but on strong pressure there was an attack of the typical neuralgia, although the patient had never suspected that the tumor had anything to do with it. It was excised without injury to the nerve and found to be grooved on its under surface for the passage of the nerve. Except for a slight flattening the nerve was otherwise normal in appearance. Without special reason for doing so De Beule stretched the nerve. The cure was immediate and complete. Histological examination showed the tumor to be a fibroleiomyoma. In several cases it has been shown that these myomas are remarkably sensitive to pressure or become the seats of very troublesome neuralgias, occurring spontaneously from cold or from external irritation. The explanation of this is probably to be found in the contraction of the muscle upon the nerve filaments. The etiology and pathology of these tumors is not known.

The Use of Animal Blood Serum in Surgery.—Stuart-Low (*Lancet*, 1907, i, 1221) has been using the old oiled-silk dressing applied directly to recalcitrant wounds. The good results in a number of such cases impressed him very much. In trying to explain the results he came to the conclusion that they must be due to the blood serum (or lymph) and the assistance given to the surface circulation. A dry dressing in contact with a healing wound absorbs the normally exuding serum and becomes adherent to the growing tissues. It thus blocks the exudation and therefore the surface circulation and dries the granulations. The oiled silk does not, and keeps the wound always bathed in serum, thus aiding the superficial circulation in the healing region. This dressing, once in common use in surgery, went out of practice because it cannot stand boiling or immersion in strong antiseptic solutions. The writer simply washes in sterilized or boric solution before applying it to a wound. Being impressed with the theory of opsonins and the practical application of them, he argued that if so much depends on the blood serum, it would be well to increase the amount of it in and about wounds; to employ it as the fluid to sluice, irrigate, and dress wounds. To test this view he obtained a quantity of fresh blood from the butcher, the blood being poured directly from the aorta of sheep into sterilized vessels. This was kept in air-tight glass jars. It was mostly in ear cases that he used the serum. It is particularly suited to these, since there is so much bone excavation that a dry instead of a weeping wound results. Desiccation is usually inimical to the ready healing of a wound, and this is successfully avoided when the serum is employed. In every instance the soft structure healed by first intention.

Clinical Remarks on the Operative Treatment of Fractures.—Lane (*Brit. Med. Jour.*, May 4, 1907) says that while recent fractures of the femur can usually be readily and effectually dealt with by operation practically without risk, the surgical treatment of malunited fractures of this bone is often difficult in the extreme. It occasionally causes some anxiety because of the profuse hemorrhage which may take place during the operation. In oblique ununited fractures Lane generally makes an oblique section of the fragments, rather than to freshen the fractured surfaces with the curette or chisel, or to make a transverse saw-cut which would in most cases sacrifice too much length of the bone. Much care is usually requisite in determining the plane in which each fragment must be divided. The fragments are then splinted together with plate and screws.

Fracture of the epiphyseal line of the head, or separation of the upper epiphysis of the femur, is rarely recognized at the time of the injury. Secure union is effected by an abundant callus with great rapidity. The patient suffers from two disabilities: an excessive outward rotation of the lower limb and an impaired function of the hip-joint. Lane has many times operated on these fractures. The capsule is exposed and the anterior ligament cleared and defined. If the stump of the neck is excessively prominent, as it usually is, enough is taken from it to allow more complete range of flexion. The outward rotation of the shaft is overcome by lacing up the anterior ligament transversely to the length of its fibers by silver wire. This approximates the points of attachment of the ligament until the range of rotation of the limb equals that of its fellow. The results have been to bring the limb nearly to the normal in function and appearance.

Concerning Suture of the Patella and its Technique.—HAUSCH (*Zent. f. Chir.*, xxxiv, 1907, 530) says that an increasing number of surgeons are suturing the fragments of a fractured patella soon after the accident. The general rule is to operate if the extension apparatus is seriously damaged, but not if the patella alone is broken. The usual test of the power of extension is the ability or the lack of it to lift the extended limb from the bed. The degree of separation of the fragments has some value. Hausch, however, shows by one case, operated on thirty-six hours after the accident, that complete loss of function may exist with only a slight tear, 1 cm. from the patella, of the lateral ligament of one side. He thought that if operation had been delayed a few days the patient would have been able actively to extend the limb, and that the loss of function in this case was due to the freshness of the fracture, that is, to the pain which prevents contraction of the quadriceps, as well as flexion of the joint. Operation was, however, indicated in this case because the lower fragment was split into several smaller fragments the union of which would probably have been disturbed by the massage and passive movements which would have been practised even if operation had not been done. Hausch agrees with Thiem that primary suture of a fractured patella is indicated not only when the lateral expansions of the quadriceps are torn but whenever a gap can be detected between the fragments, The transverse incision is exposed to the danger of infection of the fracture and the joint through a suture and to pressure on the scar in kneeling. The only objection to the large cured incision above the patella is that the flap may become detached later, but if careful hemostasis is observed, this will not occur. If it is made to consist of fascia and skin it will have a sufficient blood supply. He uses thick silver or albuminium-bronze wire, and at least one of the sutures is passed through the whole thickness of the bone into the joint. If one fragment is too narrow or splintered, the suture should surround the borders of the fragment as was done in the case described in this paper. When there is no splintering of the fragment, the other three sutures are passed obliquely through the bone so that they do not involve the joint. He always sutures over the fracture the periosteum and overlying fascia, and the lateral expansion with silkworm gut. Most surgeons dress the limb in extension and begin passive motion in about eight days, some wait three weeks (Franz Koenig) and even four weeks. Moullin, however, does not immboilize the knee after the suture, beginning as soon as possible with massage and passive motion, and permitting the patient to stand in three weeks. In recent times Hausch has begun massage of the quadriceps seventy-two hours after the operation with careful passive motion; although he has had some anxiety concerning refracture or tearing of the sutures. He has never observed it, however. Von Bruns has shown by skigrams that the sutures frequently tear out, and Hausch thinks this is due to strong tension put upon the sutures by attempts at flexion. In the cases which he has seen many weeks were required to obtain right-angled flexion. For this reason he places the knee at an angle of about 100 or 110 degrees as soon as the sutures have been placed in the fragments and lateral ligments. If they do not tolerate this degree of tension they are then loosened and retightened with the knee in that position, which the sutures will tolerate. The wound is then closed, a compress applied, and a suitable dressing to keep the limb in flexion. On the day of the operation massage is applied to the thigh and leg, and in forty-eight hours gentle passive motion. Extension can be made complete with ease, while flexion can be carried from the primary position about 10 to 20 degrees. Gradually the patient is permitted to employ active movement in the knee. Eight days after the operation the sutures are removed and on the fourteenth day with a supporting bandage he is permitted to stand up. Hausch believes that this not only hastens functional healing, but is a safer method.

An Advantage of Operation in the Acute Stage of Appendicitis.—LILLIENTHAL (*Amer. Jour. of Surg.*, 1907, xxi) considers that operation in the usual "acute appendicitis" is practically as safe as in the interval. In the interval we practically make a well man sick, while the individual suffering from the acute disease has his forces, opsonins, and leukocytes prepared for a more serious battle than that with the surgeon. To such a patient the operation comes as a comparatively little thing, and if no error in technique mars the surgeon's work, relief is immediate and convalescence speedy. The operative statistics, always excepting cases of perforation, thrombosis, gangrene, etc., are quite as good as in the interval operation; and if perforation, thrombosis, or gangrene is present, it simply means that operation was all the more indicated.

Report of a Dislocation of the Upper End of the Fibula.—GOLLEY (*Amer. Jour. of Surg.*, xxi, 1907, 171) says that there have been about 25 recorded cases of dislocation of the upper end of the fibula. He reports a case in which a man, weighing one hundred and eighty pounds, slipped and, after sliding, sprawling, and twisting, finally landed in a sitting position with his left leg under him. At the same time he felt something snap. On the following day by flexing and extending the foot a grating sensation was felt in the calf of the leg. By palpation an outward and forward dislocation of the upper end of the fibula was discovered, which became displaced as much as or more than the width of the bone whenever the foot was flexed or extended. A plaster cast was applied and left in place for three weeks, when the dislocation was found cured.

The Pathology and Treatment of Appendicitis.—ALBU (*Mitteilungen a. d. Grenzgeb. d. Med. u. Chir.*, 1907, xvii, 349) says that all cases of appendicitis, in which signs of peritoneal irritation are present, severe or suspicious, should be operated on as soon as possible. The time of operation will be decided by the occurrence of the first perceptible warning symptom of the threatening peritonitis. There is a large number of acute cases of appendicitis, which in a few days will subside spontaneously and be cured, in many cases permanently. There is nothing to justify a fundamental rule for early operation in all cases of acute inflammation of the appendix. In mild cases the dangers of the disease are not greater than those of operation. Early operation in the first twenty-four or forty-eight hours must naturally lead to many errors in diagnosis, since the symptoms at this time, especially in mild cases, are not well developed.

The statistics of early operation have no decisive value, since they include many errors in diagnosis and also the mildest cases. The presence of an appendicitis can be accepted only when the appendix shows macroscopical changes. In the treatment of perityphlitis, even of the mild cases, the use of opium and purgatives are to be avoided. In chronic intermittent and remittent perityphlitis the operation is always indicated, and the earlier the more severe the attack or the symptoms complained of. In lingering chronic appendicitis the operation is to be advised if the objective symptoms (constant resistance and tenderness on pressure at the typical place) are present. When, however, the subjective symptoms only are present, a longer trial should be given to internal therapy, which in such mild cases often leads to permanent healing.

Investigations Concerning the Etiology of Appendicitis.—KRETZ (*Mitteilungen a. d. Grenzgeb. d. Med. u. Chir.*, 1907, xvii, 1) says that in November, 1900, he had the opportunity of doing postmortems on three cases of appendicitis one after the other. One of them died one year after the attack, from traumatic tetanus. The others were severe acute fatal cases, terminating in a phlegmonous condition of the appendix and septic peritonitis. Adrian believes that there is an intimate causal relation between tonsillitis and appendicitis. Kretz supports this view on the basis of his observations. Adrian considers the tonsil as the primary focus which gives rise to a bacteremia and that to an appendicitis. Of 3579 postmortems at the Kaiser Franz-Joseph Hospital, 53 were in cases of appendicitis. Of the 53, 19 showed signs of recent acute phlegmonous inflammation. Of these 19, in 14 a complete anatomical examination was made, while in 5, for certain reasons, the neck was left alone. The 14 which were completely examined showed, besides the fatal appendicitis with septic peritonitis, a tonsillar angina. Bacteriological examinations showed, in 12 cases, streptococci in the tonsil and intestine and peritoneum. The changes in the tonsil in these cases are marked, uniform, and typically inflammatory. Kretz's investigations lead to the conclusion that phlegmonous appendicitis can be considered anatomically as a disease resulting from tonsillar angina. He feels convinced that the dominating importance of the pyogenic infections associated with anginas is very imperfectly appreciated. In 1903 he saw 11 such cases without wounds, 15 puerperal processes, and 25 erysipelas cases; not less than 14 acute and 23 subacute pyogenic infections, which took origin from the lymphatics of the throat. The acute fatal cases were 3 phlegmonous anginas, 2 tonsillar pyemias, 1 purulent basillar meningitis, 4 phlegmonous appendicitis cases, 2 of osteomyelitis, and 2 of ulcerative endocarditis. The 23 subacute consisted of 8 cases of endocarditis, 4 pleural empyemas, 2 of osteomyelitis, and a suppuration of the gall-bladder from gallstones. These important and frequent diseases, on account of their various anatomical forms, are not considered by most physicians as being related to each other. They are related to each other, not only as they may be due to one pyogenic microörganism etiologically, but they may belong to the same epidemic group in which the point of contagion is in the angina.

THERAPEUTICS.

UNDER THE CHARGE OF
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Bier's Hyperemia in Acute Gout.—ALKAN (*Die Therapie der Gegenwart*, 1907, i, 43), on the ground that blood serum is one of the best uric acid solvents, has applied artificial venous stasis according to Bier's method in the treatment of attacks of gout. This treatment, in connection with local applications, is followed by rapid cessation of the seizure. It is advised to associate alternate local applications of heat and cold with the treatment by stasis. The constriction of the part is kept up for two or three hours, the limb being elevated, and cold compresses are applied, to be followed by hot applications for an equal length of time.

Antisyphilitic Treatment in Diabetes Insipidus.—VAPHIADES (*Revue de méd.*, 1907, iii, 296) reports a patient twenty-nine years old, syphilitic for five years, who suddenly became affected with excessive thirst and polyuria; four months later the patient had become markedly cachectic and the urinary conditions persisted in spite of ordinary treatment. At this time the hypodermic administration of mercury protiodide, ¼ grain daily, was begun, in connection with the internal administration of potassium iodide in doses of 30 grains daily. After two months of treatment the patient was completely cured.

Gelatin in Melena Neonatorum.—HEYN and SCHUBERT (*La semaine méd.*, 1907, viii, 94) have employed gelatin in intestinal hemorrhages in infants; it is administered subcutaneously, and one patient, an infant of four days, who exhibited icterus and hematemesis, recovered rapidly after two injections, on consecutive days, of 5 drams of a 2 per cent. solution.

The Treatment of Tachycardia.—HAY (*Allgemeine Wiener medizinische Zeitung*, 1907, xiii, 142) considers that treatment can influence the progress toward recovery from tachycardia but little. At times the attacks increase in number as age advances, sometimes they decrease; nevertheless, treatment may lessen the patient's discomfort to a considerable degree. To diminish the number of the attacks we should endeavor to restore the normal cardiac regularity, and to attain this end we should employ general tonic treatment, all mental and physical overexertion should be avoided, and the mode of life should be regulated. All intestinal, uterine, and renal difficulties which may produce reflex excitation should be corrected, and the digestion, in particular, should be regulated. Coffee, tea, tobacco, and alcohol should be forbidden and, during attacks, rest and light diet should be enjoined. In nervous subjects the bromides are useful and the attacks may be shortened by various means. For example, the patient should press his arms and elbows strongly against his chest, compressing the abdomen at the same time, while he holds his breath after a deep inspiration. Good results are obtainable by means of deep, forced respiration, which tends to reëstablish normal heart action. Digitalis is often used, and some consider that it should be given in large doses; it is, however, not always able to give relief. If there is stasis in the portal or general venous circulation, calomel and saline purgatives are indicated. Morphine and applications of ice or sinapisms to the precordium should not be employed unless there is marked cardiac distress. The blood pressure should be carefully watched; during an attack the venous pressure increases and that in the arteries becomes less. Should the arterial pressure be elevated the hippurates, benzoates, and nitrites are indicated. Calcium chloride should be given if the vascular contractility is irregular. As a whole the treatment of this condition is empirical, and we should endeavor to find a drug or combination of drugs which is capable of lessening the excitability of the auriculoventricular band of muscular fibers.

The Treatment of Dropsy by the Deprivation of Salt.—HADFIELD (*The Practitioner*, 1907, vi, 821) considers that there are three theories upon which this form of treatment is based, and which, of the many which have been advanced to explain the efficacy of this therapeutic measure, are worthy of special attention. They are as follows: (*a*) The retention of chloride in kidney disease is due to the morbid condition of the kidney itself, a condition which leads to relative impermeability of the organ to chlorides. (*b*) The second theory maintains that the retention is a simple physical process, entirely secondary to the retention of water in the body. (*c*) The third theory holds that in dropsical patients the body tissues are in some way altered, so that they are enabled to hold, in combination with themselves, a larger amount of salt than usual. These theories are discussed *pro* and *con* and the author states, concerning three patients suffering from ascites and one affected with chronic nephritis, who were treated alternately on saltless and salt containing diet, that in each instance it was found that deprivation of salt seemed to exercise a beneficial effect, not so much in dispersing the fluid as in delaying its accumulation. The results obtained were less successful than have been obtained by this means in France, but the benefit accruing to the patients was quite sufficient to justify the employment of this method of treatment.

Opsonins and the Specific Treatment of Tuberculosis.—SQUIRE (*Brit. Med. Jour.*, 1907, i, 1417) holds that it appears, with our present knowledge, that in those diseases (such as tuberculosis) in which the bacteria produce endotoxins and which are, for a time at least, localized, injections of toxins may be useful in prophylaxis, but are of little use in the actual cure of the disease. He is still unconvinced of the wisdom of attempting to cure pulmonary tuberculosis by the introduction into the body of a further supply of tuberculous toxin. The procedure seems too risky with our present incomplete knowledge of the formation of antibodies and of the conditions which regulate the specific protective action of the leukocytes. Tuberculin may be a valuable adjunct in the treatment of surgical tuberculosis and possibly in tuberculosis of internal organs other than the lungs, but it is inapplicable in pulmonary tuberculosis. Three patients are cited in whom tuberculin treatment administered with all the precautions elaborated by Wright appeared to light up quiescent mischief in the lungs. In conclusion, Squire states that he fears that we have not the cure for consumption in tuberculin, even when regulated by watching the opsonic index, but it seems possible that we are almost within measureable distance of a satisfactory specific treatment for tuberculosis, and that we are indebted to Wright for much of our progress toward this desirable goal.

Tannin in Bronchiectasis.—MARINI (*Jour. des Practiciens*, 1907, xiv, 219) finds that tannin and calcium biphosphate exercise a marked vasoconstrictor action upon the pulmonary tissues; they also modify and deodorize the purulent expectoration. He prescribes four powders daily, each containing 4 grains of each drug. If hemoptysis takes place the quantity of the tannin may be increased by one-half. During the treatment the patient should drink only water, for all other liquids, especially alcohol, are contra-indicated.

The Treatment of Asthmatic Attacks.—VON DEN VELDEN (*Münch. med. Woch.*, 1907, xiv, 697), on the ground that theobromine sodiosalicylate possesses a dilator action upon the vascular system, has employed this drug in a number of patients affected with bronchial asthma. His results are most encouraging. He has also used the drug in asthmas of the so-called nervous type and in the catarrhal form of the affection. At the inception of the attack he prescribes 15 grains dissolved in water; if relief is not apparent in fifteen minutes a second dose is given; rarely is a third necessary. In most instances the condition is much ameliorated and sometimes the attack is terminated entirely No tolerance to the drug is established and it may be taken daily for a considerable period. Renal and circulatory lesions may contra-indicate its administration.

The Treatment of Exophthalmic Goitre.—CZYHLARZ (*Wien. med. Presse*, 1907, xi, 413) considers rest an important factor in the treatment of this condition, especially when emaciation is a marked symptom. Exercise and high altitudes should be avoided and the sea-side does not agree in some instances. Carbonic acid gas baths and chalybeate and carbonic acid waters are often useful. Other hydrothreapeutic measures which sometimes are beneficial are packs and sprinkle douches. An ice-bag may be applied to the enlarged thyroid gland and galvanization of the sympathetic nerve may be undertaken. Iron is especially indicated if chlorosis is present, and the preparations of digitalis may be employed to combat the tachycardia. Quinine and arsenic are sometimes useful as tonics, and sodium phosphate has been recommended by Kocher. Iodine should not be given, but the bromides may be prescribed as symptomatic remedies. Antithyroid medication gives varying results, and the same is true of the administration of thymus extract. With regard to operation it may be said that resection of the sympathetic nerve is useless, but partial thyroidectomy may bring about a cure. Sorgo reports 30 per cent. of recoveries, 51 per cent. of ameliorations, and 13 per cent. of deaths. Radiotherapy has been advocated and has caused improvement in some instances; it is especially potent in bringing about an increase in weight. In conclusion the author states that the most valuable form of treatment is partial thyroidectomy.

PEDIATRICS.

UNDER THE CHARGE OF

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Cerebrospinal Meningitis of the Apoplectic Type, with Hyperpyrexia.—H. F. WARNER (*Brit. Med. Jour.*, 1907, i, 992) reports the case of a girl aged ten, who previous to onset had been quite well. While at school she vomited once without apparent cause; later in the day she complained of pain under the left jaw, where there were some enlarged glands, but nothing was thought of it until later, when she suddenly fell from her seat in a convulsion. She remained stuporous from then on until death. Examination showed dilated, equal pupils, retracted head, rigidity of neck and limbs, increased knee-jerks, bilateral Kernig's sign, dissociated eye-movements and divergent strabismus, clenched hands, with occasional bilateral convulsive movements, knees drawn up and other joints flexed. Breathing was stertorous and rapid, pulse 148, temperature 98°. The next day the knee-jerks had disappeared, the Babinski reflex was present, the stupor had deepened, and the temperature rose to 104°. An examination of the eyes showed slight optic neuritis, and a lumbar puncture resulted in the withdrawal of clear fluid, from which was cultivated a large Gram-positive coccus, but no meningococcus. She had two convulsions during the day; in these she became markedly cyanosed, her respirations increased to 85, her temperature rose to 106,° and her pulse could not be counted. She died shortly after the second convulsion. There was no definite rash, but an evanescent, erythematous mottling of the skin could be observed for a short time. The whole illness occupied only 37½ hours. The autopsy showed markedly engorged meninges, but no thickening of membranes or exudate; no gross change could be found in the brain. The spinal cord was surrounded by a clear, gelatinous material. The spleen was enlarged, as were also Peyer's patches and the lymphoid follicles of the intestines; the thymus also was large. There were no signs of tuberculosis anywhere. Warner considers this a case of meningitis, the organism producing it having been of such virulence as to have caused death before the usual exudate had time to form. The optic neuritis also must have been toxic.

Thrush and its Severer Effects.—In the space of ten years J. GORDON SHARP (*British Journal of Children's Diseases*, 1907, iv, 292–296) has seen 7 children dying from thrush as a primary affection. The average age at death was eight and a half weeks, and none was over thirteen weeks. The immediate cause of death in 3 instances was laryngeal implication; in the other 4 progressive wasting, with vomiting and diarrhœa. The fatal cases occurred among people who may be termed "dirty," but the disease occurs in well-to-do circles as well. Families living near ash-pits seem to furnish more cases than those living a distance from them, and improved sanitation has diminished the number of cases in the last few years. Summer diarrhœa is found more frequently among children who have or have had thrush, and Sharp is of the opinion that the Saccharomyces albicans is the cause of it in such instances. Rarely does the fungus grow in the intestines, but the diarrhœa and soreness are due to decomposing food, fungus, and tissue carried down. The treatment of thrush consists in general and local measures. The former consists of castor oil to clear the intestines, a thorough cleansing of the bottles, and dilution of the food to 1 part of milk to 3 of water; whey or weak beef-tea should be given in cases of diarrhœa. The local treatment is attended to by the physician himself. A clean, soft rag is wrapped around the handle of a teaspoon dipped in warm water, and the entire surface is cleansed of fungus and adherent matter until it bleeds. Powdered boric acid is next applied to every part of the mouth; the same procedure is then gone through with the nasopharynx and the epiglottis, if necessary. The nipples and the breasts of the nursing mother must be washed off with clean, warm water twice daily. If the external ear is implicated carbolic soap must precede the boric powder.

A Peculiar Outbreak of Erythema Nodosum.—W. LANGFORD SYMES (*British Journal of Children's Diseases*, 1907, iv, 281–284) reports an epidemic of erythema nodosum, occurring in one of the Homes for Children. The house was large, airy, detached, and had apparently good sanitation; there was very little overcrowding, and there was nothing peculiar in the food of those affected. There were 13 cases in all; 1 of them was followed within twenty-four hours by symptoms of meningitis, and death followed two and a half days after the onset of the erythema; another patient became profoundly ill, temperature going to 104°; 4 developed endocarditis as a part of the infective process; 4 of them had relapses. The outbreak emphasizes the following facts: erythema nodosum may become a serious and dangerous disorder; it is sometimes epidemic; it appears to be of an infective nature; endocarditis may arise during its course; it may be quickly followed by meningitis.

The Medical Treatment of Congenital Pyloric Stenosis.—SUTHERLAND (*Lancet*, March 16, 1907, i) refers to the medical treatment of this affection by means of dieting and gastic lavage. He reports 3 cases which he has treated successfully by such measures. He insists that there will be fewer and fewer cases in which surgical interference will be called for, as our knowledge and experience of the medical treatment advance. The first sign of progress toward cure is cessation of the vomiting. This usually follows quickly after lavage and suitable feeding have been carried out. Then the bowels begin to act naturally. This is a very important sign of progress, for it is in such marked contrast to what occurs in untreated cases. After the medical treatment has been begun the bowels act two or three times a day without artificial stimulation, and the motions are larger and consist of fœcal matter. The stomach peristalsis gradually becomes less marked, and eventually passes off completely. The discomfort and constant whining of the infant also cease. The infant's nutrition improves. This is manifested by a healthier color, increased activity of the limbs, and by a slow gain in weight. These infants cannot be fattened rapidly. Any attempt to secure this will probably end in disaster. A simple diet is best, and the less weighing of the child the better, especially if anxious relatives are about. Diarrhœa is a common complication in the course of treatment. It is due to the fact that the bowel is unused to the presence of food material, and so is easily irritated at first. Diarrhœa is always a serious symptom. Sutherland has not derived much benefit from the administration of antispasmodics, or of opium, even when pushed to their full physiological extent. Saline injections, however, he finds of great service in marasmic babies. From 4 to 10 ounces of normal saline solution can be given daily, and will act as a restorative until the improvement of the pyloric function allows of the entrance of a sufficient amount of fluid into the system by the natural channel. Brandy is also of use as a stimulant. Inunctions of cod-liver oil may be of some value, but in the only case in which he employed it in this way it caused a skin eruption.

Pneumothorax and Acute Hemoptysis in Children.—O. Cozzolino (*La Pediatria*, 1906, 881) described two such cases which occurred in the children's clinic at Genoa. In the first there was a localized tuberculous infection of the tracheobronchial and mesenteric glands in a girl aged twenty-eight months; tuberculous infiltration of the left lung and pneumothorax of the same side. The author gives a tabular analysis of 41 cases: Pneumothorax is very rare in children and is always secondary; tuberculous pneumothorax is, in contradistinction to adults, less frequent than all the other forms of pneumothorax taken together; only about 40 per cent. of cases of pneumothorax in children are tuberculous, the majority of the cases being consecutive to abscess, gangrene, pulmonary infarct, traumatism, etc.

Diagnosis is often difficult owing to either the insidious onset or the absence of important symptoms (amphoric breathing, metallic tinkling, etc.), or to the difficulty of obtaining them in a child that breathes badly. Some of these symptoms, moreover, may be met with in children having pulmonary cavities, pleurisy, or pneumonia.

The cause of infantile tuberculous pneumothorax is either the rupture of a pulmonary cavity by progressive thinning of its walls or the pressure on the lung exerted by masses of swollen, caseous bronchial glands, or more rarely the rupture of an emphysematous vesicle. In Cozzolino's case there was perforation of a large tuberculous cavity in the lower lobe of the left lung, which could not be diagnosticated during life.

Prognosis is absolutely unfavorable, linked as it is with that of the causative disease which contributes to a fatal issue. The most common site for perforation is the base of the left lung. Infantile pneumothorax, whether tuberculous or not, is invariably total and rapidly becomes a pyopneumothorax.

The second case described was a profuse and rapidly fatal hemoptysis in a girl, aged four and a half years, affected with chronic miliary tuberculosis, with bronchopneumonia and a cavity in the left apex. A tabular analysis of 48 cases occurring in children below the age of seven years is given, which demonstrates that profuse and fatal hemoptysis due to tubercle below seven years of age is extremely rare, and occurs only in advanced stages of the disease; there is always a cavity of the lungs, or of the tracheobronchial glands; it is often of a fulminating type, without premonitory signs; its extreme rarity is partly explained by the fact that tuberculosis of the lungs in young children produces hepatization and vascular occlusion rather than destruction of tissue and formation of vomicæ.

OBSTETRICS.

UNDER THE CHARGE OF

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Eighty-eight Cases of Early Tubal Gestation.—HAMILTON BELL (*Jour. Obstet. and Gyn. Brit. Empire,* December, 1906) gives the results of his studies in 88 cases of tubal gestation at St. Thomas' Hospital. Only early cases are taken and those under the care of physicians sufficiently experienced to study them accurately. The series is tabulated and the cases are subjected to analysis. Attention is drawn to special points of interest in the various cases. Bell concludes that the diagnosis of tubal gestation followed by rupture or abortion is difficult. In many cases the patient has been ill for one or two months before coming to the hospital, the condition not having been correctly diagnosticated.

Typical signs and symptoms are, the missing of one or two menstrual periods, sudden acute pain in the lower portion of the abdomen on the right or the left side, with faintness and vomiting. At about the same time vaginal hemorrhage occurs, continuing irregularly, the blood lost being usually less than that of normal menstruation. Clots are often passed, and sometimes a cast of the uterine cavity; there is slight elevation of temperature and difficult micturition. When rupture and internal hemorrhage have taken place there will be characteristic symptoms of bleeding. In the majority of cases the hemorrhage is only sufficient to form a pelvic hematocele.

The signs characteristic of this condition are the pushing forward and to one side of the uterus, the cervix being softened and the body of the womb slightly enlarged. Between the uterus and one side forms an elastic swelling which depresses the cul-de-sac in the roof of the vagina, which varies in consistence and tenderness. In 50 per cent. of the 88 cases a period of amenorrhœa occurred, lasting for five weeks or more. In all of the cases abdominal pain was pronounced. It was acute, with faintness and vomiting, in 21; acute with faintness only in

19; acute with vomiting only in 21; acute with faintness or vomiting in 11, and indefinite abdominal pain in 15. The hemorrhagic discharge from the vagina occurring at some period of the illness and persisting was a very constant and important symptom. It was present in 73 out of the 88 cases. The passage of a decidual cast was a very uncertain and misleading symptom. In only 17 of the 88 cases was there a clear indication of this occurrence. Elevation of temperature was present in but 23, but this is unquestionably too low an estimate for a careful observation, and this symptom was not afforded in many cases. It is of little value in differential diagnosis. Disturbance of the bladder was present in 20 of the 88 cases. These cases show that no reliance can be placed upon the occurrence of a period of sterility preceding the ectopic gestation. As regards age, the accident is most frequent between the twentieth and fortieth years. The physical signs varied with the degree of hemorrhage and the source of the bleeding. The condition of the breasts was extremely misleading, while the presence of a pelvic mass was of more value in diagnosis. Softening of the cervix and enlargement of the body of the uterus often gave information concerning the nature of the pelvic swelling. Experienced observers could detect the persistence of the pelvic mass, which was suggestive. Physical signs alone cannot be exclusively relied upon to make a diagnosis. The clinical phenomena must be thoroughly studied and compared. Especially important is the persistence of irregular bleeding. Abdominal pain in the lower portion is next in value. As far as treatment is concerned, most of these cases were treated by surgical operation as soon as the diagnosis was made. Some were treated by rest only, but these were the milder cases in which a positive diagnosis was not possible. When a pelvic hematocele had formed the wishes of the patient and the circumstances of her life should be carefully considered. In the majority of cases recovery will follow whether the treatment is surgical or expectant. Champneys reports 75 cases, in only 26 of which operation was done. As this was reserved for the most severe cases, it was attended by high mortality. In the whole series 7 died, all of them after section, giving a mortality of 27 per cent. In Bell's series of 88 cases, most of them treated by operation, there were 3 deaths with a mortality of 3.4 per cent.; 73 of these were treated by abdominal section, including all the most severe cases. This makes the mortality rate 4.01 per cent. As regards the convalescence of the patients, it is thought that the number of days spent in the hospital, in the cases operated upon, and those not operated upon, is not an accurate criterion. In the first half of the series, the average convalescing was 35.3 days; in the second half, 29.4 days. In Champneys' series the average hospital convalescing was 39.2 days. The mortality was least in those patients operated upon as soon as possible after admission.

This paper and that of Champneys are tabulated and compared in that form. Champneys' patients were largely treated by the expectant method. His mortality was 9.3 per cent., while Bell's mortality was 3.4 per cent. In Champneys', 45.3 per cent. of the patients recovered without operation; in Bell's, but 10.2 per cent. Champneys practised vaginal section in 20 per cent., while Bell could collect but 6 vaginal sections in his cases. The mortality of abdominal section in Champneys' cases was 26.92 per cent.; in Bell's cases, 4 per cent. This striking disparity would indicate that early operation is by far the safer procedure.

Ectopic Gestation Occurring in India.—STANDAGE, of the India Medical Service (*Jour. Obstet. and Gyn. Brit. Empire*, December, 1906), describes 15 cases of ectopic pregnancy occurring in India; 5 of the 15 were European women; the remainder were natives. The ages of these patients ranged from 43 to 22 years. There was but one primipara. The average number of previous pregnancies among these patients was 3.06 per cent. and among the 14 women who had previously been pregnant an interval of 6.07 years had elapsed. But 3 abortions or miscarriages among these patients were recorded.

As regards the signs of ectopic gestation, all but one patient described had distinctly disordered menstruation. On the average 2.2 months passed. Among the signs of ectopic pregnancy there was no nausea or morning sickness. The presence of milk in the breasts was noticed in 4 cases, and 6 had pelvic pain which became sudden in 11. The effect of the pain was not as pronounced as has been reported by some. In fact, among the natives, acute symptoms were comparatively rare. Even after rupture of the pregnant tube the patient would continue about for some time before yielding to the illness. From twenty days to two months was observed as the interval between the onset of pain and the patient's giving up to the condition. In one case a native woman had hemorrhage sufficiently large to fill the pelvis and a portion of the abdomen with blood clot. For a month after the first symptoms this patient worked as usual, and was finally compelled to seek medical advice because of a swollen abdomen. Upon operation the abdomen was filled with blood clot, and a ruptured sac of five months' pregnancy and fœtus were discovered in the peritoneal cavity.

In every case except one in which rupture of the Fallopian tube was either suspected or present, there was a history of a sudden attack of pain. In native patients this pain was never described as agonizing. There was constipation or painful movements of the bowels, and frequent emptying of the bladder when much blood was brought into the pelvis. One patient came to the hospital principally to be relieved of disturbance of the bladder.

The most constant symptom present in all cases but one was irregular hemorrhage, together with a thick, glutinous, reddish or brown discharge. This begins with the expulsion of the uterine decidua, which is usually thought by patients to be a miscarriage. This oozing of blood continues until the condition is permanently cured by operation; 5 out of 15 patients gave a history of abortion occurring at periods varying from four to eighteen days before admission to the hospital.

The detailed report of these cases illustrates how wide is the variation in symptoms and how obscure many of these cases are. The most significant symptom uniformly found was tenderness of the abdomen. This occurred in 100 per cent. of the cases. A tender pelvic tumor was found in 93.3 per cent.; irregular, more or less abundant hemorrhage was also noted in 93.3 per cent. In the majority of cases there was cessation of normal menstruation, and a sudden attack of pain more or less severe. Disturbance in the function of the bladder, vague pelvic pains, and painful defecation occurred in two-fifths of the cases.

A history of abortion with probably the expulsion of a decidual cast was given in one-third of all cases. Milk was found in the breasts in one-fourth of the cases.

As illustrating the tolerance of the Indian native to ectopic gestation and rupture, collapse occurred in but 21.4 per cent. The remainder of these patients did not even go to bed. In none of the cases was there morning nausea and vomiting. The death rate of the series was 7.1 per cent., the fatalities occurring in cases which had become septic, and in cases in which operation was declined.

The Neutrophiles of the Blood in the Puerperal Period, and the Effect Produced by Antistreptococcic Serum.—BURKHARD (*Archiv f. Gynäk.*, 1906, Band lxxx, Heft 3) reviews Arneth's work upon this subject. Early in the puerperal period an increase in leukocytes is observed, especially in the cells having a single nucleus. In a case of fatal postpartum bleeding a great increase in the leukocytes to 45,000 was observed; in a case which recovered the number was 15,000. Twenty-four hours later it had fallen to 6000. In pregnancy complicated by nephritis and by lesions of the heart the neutrophiles are not changed. In septic infection there is increased leukocytosis, as a rule, but not as typically and as pronounced as in pneumonia. In puerperal sepsis the number may vary from 2400 to 28,000. In fatal septic cases 2600 to 3500 with 70 per cent. of single nucleus young cells, has been observed. In severe toxemia as few as 2400; and in septic cases, which recovered, 4000 to 5000 have been observed. In fatal pyemia 1800 to 7500 leukocytes are recorded. Other cases with polyleukocytosis ranged from 12,000 to 28,000; polyleukocytosis is an important and significant symptom. In 11 cases of severe infection with streptococci, the number ranged from 6000 to 9000; in 4 cases in which saprophytes, or the bacterium of the colon were present, the number was 18,000 to 28,000. When the septic infection fails to become localized the number of leukocytes is least; when localization becomes established in streptococcic infection, the leukocytosis rises to 12,000 to 15,000; in cases not of streptococcic infection it may rise to 24,000. When improvement begins the leukocytosis decreases. Paultauf's antistreptococcic serum produced improvement in 60 per cent. of the streptococcic cases in which it was used. The serum increased the leukocytes and neutrophiles.

GYNECOLOGY.

UNDER THE CHARGE OF

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A Special Form of Climacteric Hemorrhage.—H. MEYER-RUEGG (*Zentralbl. f. Gyn.*, 1907, xxxi, 629–632) remarks on the greater frequency with which women, flooding irregularly about the time of the menopause, consult physicians. He reports the cases of 4 women, all of whom were passing through the climaceteric period, and who came to him because of prolonged serosanguinolent discharge; in several of them it had lasted continuously for weeks. In all of them he found the following conditions: The menstruation had always been profuse and had lasted long; because of this and the profuse leucorrhœal discharge complained of, a preceding state of endometritis could be believed to have existed. The examination showed a smooth, atrophic vaginal mucous membrane; the vaginal part of the cervix was small or entirely absent; the supravaginal part relatively large and the corpus uteri small, hard, and partly involuted. The cervical os was very small and in 2 cases it could only be distinguished because of a thread of mucus hanging from it. After some difficulty a sound could be introduced and the cervical canal was found ballooned out. Dilatation of the cervix brought about an escape of loose, black coagula. He considers the condition one of "cervical hematometra" and believes it to be caused by the prolonged retention of blood behind the small external os. The removal of the stenosis by dilatation or discission brought about a definite cure in each case.

Unexpected Cures in Inoperable Carcinoma of the Uterus.—Unexpected cures in inoperable carcinoma of the uterus are very rare, as are also cases in which for a prolonged period of time no recurrence is noted. Czerny has only been able to report one such. F. WEINDLER (*Zentralbl. f. Gyn.*, 1907, xxxi, 632–635) reports the details of 3 such instances, in all of which the patients seemed hopelessly doomed and in which they recovered against all expectation. All are living today, five years without a recurrence having been reported. The procedure in all was thorough curettement, cauterization, and application of concentrated carbolic acid. Weindler emphasizes as necessary conditions for such a cure: the full protective forces of the organism against the proliferation of the tumor cells. These are round-cell infiltration in the stroma, increase in the number of bloodvessels in the neighborhood of growing carcinoma, the destructive power to carcinoma toxin of the mastzellen in the lymph glands, and the thickening of the cervical epithelium. Other favorable moments for a cure by palliative measures are a certain degree of emaciation and thinness of the patient, deep action of the cautery, and a favorable histological structure of the tumor.

Extra-uterine Pregnancy.—Between the years 1878 and 1905 RIEDINGER (*Wien. med. Presse,* 1907, xlviii, 20, 21, and 22) observed among 28,000 patients 42 individuals with extra-uterine pregnancy and 79 with retro-uterine hematocele, altogether 121 cases. Of the former he operated on 14, with 1 death; of the non-operated cases 3 died. Of the 79 hematocele patients 9 were operated on, also with 1 death, while of the other 70 none died. In spite of the relatively favorable results of the conservative measures Riedinger declares himself, because of the finished state of our modern operative technique, in favor of active interference as soon as a diagnosis is made.

Uterine Inversion Following an Abortion.—F. PREISMANN (*Zeit. f. Geburt. u. Gyn.*, 1907, lx, 152–160) reports the case of a woman, who had previously given birth to 5 children, and in whom without known cause a miscarriage was noted about the fifth month of her sixth pregnancy. The fœtus came away easily, but the placenta remained behind. The patient bled profusely during the next few weeks, but she did not send for a physician until a month later, when after lifting a heavy trunk the uterus suddenly inverted. The placenta was easily loosened then, but the hemorrhage which followed was so great as to cause the death of the patient. A microscopic examination of the uterus revealed marked degenerative changes in the muscle of the uterus about the point of placental attachment. Preismann believes that the placenta, which in none of the reported cases was expelled before the inversion of the uterus, plays a role in the production of the inversion by pulling on the weakened uterine wall; no special violence is needed to bring it about.

Destructive Vesical Mole.—H. Kauffmann (*Zeit. f. Geburt. u. Gyn.*, 1907, lx, 136–152) reports the case of a woman of thirty-eight, who had given birth to 11 children, with all of whom she had considerable difficulty because of her flat pelvis and the large size of the infants' heads. Her menstrual flow had always weakened her, but never so much as since the birth of her last child. Because of a persistant bloody discharge she was examined and a diagnosis of vesical mole made; a few small vesicles came away after manual dilatation of the cervix. Curettement was easy and followed by immediate improvement; the patient recovered apparently very promptly. A recurrence was noted within a month and a second curettement resorted to; it was thought to have been a retention, as only a small amount of mole material could be found. Within a few months the patient developed to the right of the uterus a soft elastic tumor, which was believed to be a chorion epithelioma growing from the uterine tissue, but upon operation it was found to be a vesical mole the size of an orange, which had developed in the veins of the broad ligament. It was connected with the uterine cavity and a polyp growing from it by a small pedicle; otherwise the entire organ was absolutely distinct from the tumor. This new hydatiform growth showed no essential difference from the primary growth, but was limited to the different layers of the veins; it must therefore be looked upon as having arisen from the previously removed uterine mole (being a direct continuation of it), and as it extended beyond the limits of the uterus, it has to be classed with the type known as "destroying vesical moles." On account of the limitation of this mass to the broad ligament, the other structures of the pelvis not having been affected at all by it, the tumor is a further proof of the fact that vesical moles may be followed by benign formations in the pathological conception. Such tumors may become malignant at any time, but do not usually become malignant until some new irritant, such as pregnancy, is added. Four months have elapsed since this last operation, but the author is not sanguine as to the definite recovery of his patient.

Chorion Epithelioma Developing Between the Layers of the Broad Ligament.—A. Garkisch (*Zeit. f. Geburt. u. Gyn.* 1907, lx, 115) reports from Franque's clinic the case of a woman of thirty-seven, who had previously given birth to two healthy children. Within two months she had repeatedly had profuse bloody discharge from the genitalia and was admitted to the clinic because of its continuation. The examination revealed a hard, nodular tumor rising from the left side of the pelvis and another on the right side connected therewith. The operation revealed the mass to be a chorion epithelioma of the left parametrium. The patient died twenty-four days after the operation, of pulmonary embolism, metastases to lung, and pulmonary abscess; metastases had also appeared in other parts of the body, a recurrence being noted also in the pelvis. A careful macroscopic and microscopic examination of the mass produced the following facts and led to the deductions recorded. The case was one of chorion epithelioma which had developed between the layers of the broad ligament and without affecting the uterus. It was most likely preceded by a tubal pregnancy at the isthmus. The tumor developed after the rupture of the tube, from the tubal surface nearest the broad ligament; it developed by growing into the layers of the ligament, separating them as it developed. The possibility of an ectopic chorion epithelioma following an intrauterine pregnancy and miscarriage is not denied. The central portion of the Fallopian tubes showed marked decidual change; the uterine and abdominal portions showed none at all. The uterus presented a typical decidua, 1 cm. thick; the surface epithelium of this had markedly flattened and had proliferated into several layers; the glandular epithelium also showed remarkable proliferation. There were decidual changes on the surface of the ovary. The case belongs to the most malignant forms of chorion epithelioma, as the tumor was found extending into the abdomen within a few weeks after the last period and death occurred four months after the last menstruation.

OTOLOGY.

UNDER THE CHARGE OF

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The Operative Treatment of Othematoma.—H. SELIGMAN'S (*Archiv. f. Ohrenheilk*, 1907, vol. lxix) operative treatment differs from the ordinary treatment, by means of simple incision and pressure dressing, in that it aims at a radical procedure in excision of the diseased cartilage, with retention of the protective healthy skin. The auricle having been made surgically clean, and anesthetized by subcutaneous injection of a solution of cocaine and suprarenine (solution of cocaine muriate 0.05 to 10.0 + suprarenine 10.0 to 10 solution, minims 2 to 3), an incision is made throughout the length of the swelling on the anterior surface of the auricle, in its long axis, but through the skin only. There is usually but little hemorrhage, and the two skin flaps thus formed are successively seized by the forceps, dissected up from the underlying swelling, and retracted until the contour of the swelling is completely exposed; a small short-bladed scalpel is the best instrument for this dissection and extreme care should be taken to avoid puncturing the underlying sac, as the lack of the smooth resisting surface which it presents, when intact, considerably increases the difficulty of preparing a perfect skin flap. With the skin flaps completely retracted. and held in position by means of blunt hooks, a circular incision is made about the base of the swelling, and the tissues covering the fluid contents of the sac completely excised. With the evacuation of the fluid there then remains only a concavity upon the surface of which the skin flaps may be adjusted and kept in place by the pressure of gauze pads, until healing has ensued, the ultimate result being a smooth skin surface, with a slight linear scar on the anterior face of the auricle, and a preservation of the natural contour.

This method of operation is equally applicable in the perichondritis of the auricle which sometimes occurs as a consequence of the tympanomastoid exenteration. It is important, however, to distinguish between the serous and the suppurative form of this affection: in the latter the flap operation is sometimes ineffective, in the former it is always applicable; the incision through the skin here also should be made over the greatest convexity of the swelling, in a line with its long axis. Of the 11 cases, upon which Seligman has operated by this method, all have been done upon the anterior face of the auricle.

Microscopic examination of the excised outer covering of the othematoma justifies its radical removal and explains the deformity which usually results in unoperated cases; this outer covering is mainly cartilage, isolated from the main body of the cartilaginous plate of the auricle by means of cicatricial tissue, broken up into individual portions, inelastic, disorganizing and functionally ineffective for the preservation of the contour of the auricle. In cases of spontaneous healing the cicatricial retraction of the connective tissue fibers, evident in the covering of the othematoma, by exertion of varying stress in different directions, under shrinking of the connective tissue coincident with resorption of the fluid contents of the swelling, contribute to the irregularities of surface pertaining in a deformity of the auricle which the method of operation above described is calculated to avoid.

Mastoiditis and Thrombophlebitis of the Lateral Sinus.—E. Bardier and E. Meriel (*Annales des maladies de l'orielle et du larynx*, 1906, xxxii, 140). The early diagnosis of thrombophlebitis of the lateral sinus and jugular vein is one of the important problems of otology today, and any experience which will tend to enlighten the profession upon the clinical evidences of definite pathological changes is worth recording. Bardier and Meriel report a very interesting case of parietal thrombus of the sinus which was suspected but not proved until autopsy. The clinical history and the autopsy findings afford an opportunity for important practical deductions regarding the recognition and treatment of this class of cases.

A young woman, aged twenty-one years, with a history of chronic suppurative otitis media involving the right ear, of eight years' duration, was suddenly attacked by severe pain in that ear, with high fever and rapid pulse. Antipyretic treatment did not relieve the general condition and four days later, when she entered the hospital, the temperature had risen to 105° F., the head pain was severe and she had experienced chills and nausea. Pus from the auditory canal gave a pure culture of the pneumococcus. The right sternocleidomastoid muscle was contracted and painful, but the examiner could not determine any induration along the course of the jugular vein. The patient's general appearance was that of a serious infection, probably arising from invasion of the lateral sinus. Mastoidectomy was performed promptly and the antrum cleared of the necrotic material, but the sinus was not exposed, apparently because the operator had not discovered a direct carious track to that vessel. The temperature immediately fell to 99.5° F. and varied but slightly for two days, but on the third arose again to 105°, with chilliness and vomiting. Then began the typical zigzagging temperature curve, from 100° to 106° F., and a second operation was advised. This time the dural covering of the sinus was exposed, after an exploration of the temperosphenoidal lobe for extradural abscess or meningitis, but, inasmuch as the vessel seemed to present a normal color and was compressible, it was not attacked. The septic course continuing, a third exploration was performed three days later but, still, in spite of the clinical evidences of thrombosis, the surgeon could not persuade himself to open or ligate an apparently normal vessel. Two days later, the ninth from the date of entrance, the patient died of general septicemia.

Autopsy disclosed the fact that the lateral sinus and jugular vein, from the torcula to the hyoid bone, was the seat of a parietal coagulation, 3 to 4 mm. in thickness, covered with purulent streaks; about three-quarters of the central lumen of the sinus was permeable. At the base of the right lung three metastatic abscesses were found and there were areas of bronchopneumonia.

Bardier and Meriel draw the salutary conclusion that it would be wiser in such cases to follow the general clinical indications than to rely upon the appearance of the vessel wall. A study of the temperature is of far more value than mere inspection of the vessel or a drawing of blood from its lumen; in this instance, free blood might have been obtained, despite the presence of an extensive thrombus. Success in the treatment of lateral sinus thrombosis depends upon its early recognition and the prompt establishment of a barrier between that thrombus and the heart. When considering the graver sequels of the suppurative otitis media we must remember that a zigzagging fever curve, especially when accompanied by chills, points more strongly to sinus thrombosis than to any other of the possible complications, and, furthermore, when a sinus has been exposed, because the clinical evidence pointed strongly to infective thrombosis, it is more conservative to ligate the jugular and open the sinus, than to leave it alone.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

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Biology of Diplococcus Intracellularis.—FLEXNER, (*Jour. Exp. Med.*, 1907, ix, 105) presents a number of new facts in regard to the biology of Diplococcus intracellularis, especially in regard to the autolysis of the organism. The effect of a number of experimental conditions was tried upon the viability and dissolution of this organism outside of the body. Flexner found that the brief vitality of the cultures outside the body is not to be ascribed directly to the exhaustion of the medium or the accumulation of injurious products of growth. Cold favors destruction of the organism on solid media and in salt solution suspensions. But cold is more injurious to the cocci and destroys them more quickly in a weak than in a highly concentrated suspension. 2° C. was the temperature used. When a similar series of concentrations of suspension of the organism was kept at 37° C., it was found that more organisms survived in the weaker than in the stronger suspensions, giving opposite results from those obtained at 2° C.

When Ringer's solution was used instead of normal salt solution, the organism remains alive in suspension much longer. This fact is probably due to the influence of the calcium salt. Normal salt solution is directly poisonous to Diplococcus intracellularis, and it is apparent that the toxic effect of the sodium chloride can be neutralized by the calcium and potassium salts in Ringer's solution.

Disintegration of the organism occurs rapidly in salt solution suspension, and this is apparently due to an intracellular enzyme. It was found that toluol, which kills the cells but which does not prevent enzymic action, hastened disintegration. Suspensions heated to 60° C. undergo rapid disintegration, while heat of 65° or higher reduces the capacity of the diplococcus to undergo disintegration.

Potassium cyanide possesses the power of preventing or diminishing autolysis of the dead diplococci, thus agreeing with the findings of Jacques Loeb, that this substance has a restraining influence upon intracellular enzymotic activity. On removal of the cyanide the diplococci are partially restored to their previous state of autolysis.

This intracellular enzyme, which is apparently liberated when the cell is destroyed and can be obtained by washing the bacteria, was found to have a destructive action on other bacteria besides Diplococcus intracellularis. It is probable that non-Gram staining organisms are more easily disintegrated by the enzyme than are Gram staining organisms. This enzymotic action was not effected by toluol, but when heated to 65° C. it ceased to act on the diplococcus, while 70° C. was necessary to destroy its action for other bacteria.

Diplococcus intracellularis was found to have low and variable pathogenicity. Small guinea-pigs were found to be very susceptible, even more so than mice, to the same dose. After peritoneal injections there is a fall in temperature, and the extent of this fall is larger with virulent organisms and may be taken as an index of the degree of virulence. Within the peritoneal cavity the destruction of the organism is not dependent upon phagocytosis, but can occur in fluid inflammation exudates through self-digestion. Agglutination occurs in the peritoneal cavity. The diplococcus acts upon the guinea-pig by its intracellular toxin, liberated by disintegration of the organism and not by a secreted extracellular toxin. This is shown by the use of autolysates and cultures killed by heat. Autolysates are obtained by suspending masses of the bacteria in salt solution and then filtering or centrifuging until no bacteria remain. This fluid is toxic for small guinea-pigs when injected intraperitoneally. This toxic action is not materially reduced by heating the fluid to 65° C.: when diplococci are heated to 60° C. their toxicity is distinctly reduced.

Among other lesions found in the guinea-pig were small hemorrhages in the peritoneum. As these might bear relation to the hemorrhages in meningitis in man they were investigated and found to be focal. The vessels were not injured or thrombosed, but the endothelium was sometimes destroyed, as may be seen after injections with hemorrhagin of snake venom. These focal hemorrhages follow injections of the autolysate, but more regularly with the centrifuged than with the filtered fluid.

Peritoneal exudate following injection of the diplococcus has in vitro a more destructive action than the blood serum from the same animal.

Absorption from the Peritoneal Cavity.—Buxton (*Jour. Med. Research*, 1907, xvi, 17) continues his studies in absorption. The earlier part of the work, done in conjunction with Torry, appeared in the same journal, 1906, xv, p. 5, when the absorption from the peritoneal cavity and fate of inert particles and typhoid bacilli was discussed. The first part of the present paper deals with an attempt to determine the number of typhoid bacilli present in the blood of rabbits at various intervals after injection into the peritoneal cavity. The blood was found to contain many organisms immediately after large doses were introduced intraperitoneally, but at the end of one hour the number was greatly reduced, and in twenty-four hours practically no organisms were found in the circulating blood, although in some cases a few were found four days after the inoculation. In rabbits that succumbed to the inoculation many more organisms were found in the blood than in those animals which survived four days.

Organisms were found in various organs of rabbits that survived for four days, but they were present in the anterior mediastinal glands in much larger numbers than elsewhere, while in rabbits that succumbed to the inoculations the organs contained a great many more bacilli. In testing the bactericidal power of rabbit's serum, four days after inoculation, Buxton finds that this property is much less than it is in the serum from inoculated rabbits. The serum from normal rabbits varied in its bactericidal power inversely with the square of the dilution, that is, 1 c.c. of serum diluted 1 to 10, kills not one-tenth but, one-hundredth of the number that the undiluted serum kills.

In the seventh part of the whole series of papers Buxton describes the results of his experiments on the effect of minimal doses of bacteria, and discusses the bearing of these experiments upon the question of peritonitis. He finds that bacteria injected into the peritoneal cavity of experimental animals, even in minute doses, reach the circulation in a few minutes, and that this immediate absorption takes place by the lymphatics of the diaphragm.

He, therefore, thinks that his experiments indicate that the semi-sitting position of Fowler following operations for peritonitis is indicated in order to avoid a rush of bacteria to the diaphragm, and that flushing of the peritoneal cavity is contra-indicated. Buxton believes that the sudden death of rabbits following inoculations is due to toxemia, and that the deaths occurring within one or two hours after operations for peritonitis usually attributed to shock, are analogous.

The Changes in the Liver in Eclampsia.—Since Jürgens first described "hepatitis hemorrhagica" as a characteristic lesion of the liver in eclampsia, the condition has been repeatedly studied. Schmorl, in 1893, reported a study of 17 cases and in his descriptions distinguished between hemorrhagic and anemic necroses in this condition.

Konstantinowitsch (Ziegler's *Beiträge*, 1907, xl. 483) reports, from Marchard's laboratory, a study of the livers from 30 cases of eclampsia. He finds, as one of the earliest changes, alterations in the liver cells and of the endothelium of the capillaries in the peripheral part of the lobule. The changes, which consist in granulation and vacuolation of the protoplasm, increase as the disease proceeds until the liver cells present a reticulated appearance. One sees in all cases widening of the capillaries with congestion, and frequently escape of blood from the capillaries, in the peripheral part of the lobule. This is due to slowing of the circulation which is brought about directly by primary thrombosis of the capillaries in the periphery of the lobule. Konstantinowitsch lays great stress upon this thrombosis, and believes that the death of the liver cells goes hand in hand with the development and spread of the thrombosis. First the smaller and then the larger interlobular vessels are thrombosed. The thrombi are, for the most part, fibrinous, or composed of blood and fibrin, and are rarely if ever hyaline in character. In the neighborhood of the anemic necroses is found the fibrin which appears first in the periphery of the lobule and seems to precede the necrosis. Liver cells were found in the lumen of the portal and the hepatic veins, but this was considered to be an artefact. Under certain conditions these lesions, which are characteristic of eclampsia, may heal and give rise to a cirrhosis of the liver. In a few instances evidences of regeneration of liver tissue were seen, a process which before this time had not been noted in the lesions in the eclamptic liver.

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